

Claims

- [c1] 1. A vibration system for machines for making concrete products such as concrete pipes and the like, which machines utilize a mold that includes an outer mold and an inner mold that provide an annular space into which concrete is introduced to form the concrete product, said vibration system comprising:
- an inner mold having an inner surface that defines an interior space having a longitudinal axis;
 - upper and lower bearing mounting plates spaced apart along the longitudinal axis of the interior space and secured to the inner mold;
 - a coupling shaft bearing mounted on each of the bearing mounting plates;
 - a coupling shaft supported by and turnable in the coupling shaft bearings and having upper and lower ends extending beyond the upper and lower mounting plates;
 - a coupling hub fixed to each of the upper and lower ends of the coupling shaft;
 - upper and lower vibrator mounting plates secured to the inner mold beyond the upper and lower ends, respectively, of the coupling shaft;
 - an upper vibrator assembly mounted on the upper vibra-

tor mounting plate and a lower vibrator assembly mounted on the lower vibrator mounting plate; and upper and lower vibrator coupling hubs engageable with the respective coupling hubs at the upper and lower ends of the coupling shaft whereby the vibrator assemblies can be properly synchronized.

[c2] 2. The vibration system of claim 1 in which the coupling hubs at the ends of the coupling shaft and the vibrator coupling hubs are each of the jaw type having jaws that are engageable so as to couple the upper and lower vibrator assemblies.

[c3] 3. The vibration system of claim 2 in which the upper and lower vibrator assemblies each includes a motor rotating the vibrator coupling hub, and weights are eccentrically mounted with respect to the axis of rotation of the vibrator coupling hubs, the eccentric weights of the upper vibrator assembly being adjustable relative to the eccentric weights of the lower vibrator assembly to provide for proper alignment and synchronization of the vibrator assemblies.

[c4] 4. The vibration system of claim 3 in which there is a first elastomeric coupling element positioned between the coupling hub of the upper vibrator assembly and the coupling hub at the upper end of the coupling shaft and

a second elastomeric coupling element positioned between the coupling hub of the lower vibrator assembly and the coupling hub at the lower end of the coupling shaft.